

The hazards of smoke from fire and fuels management: application of the Risk Information Seeking and Processing (RISP) model

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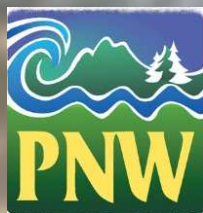
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Overview

- Project Background
- RISP Background
- Methods, Study Sites, Respondents
- Results
 - Key RISP variables
 - RISP model
- Conclusions

Fire and Forests

- Fire suppression
- Fire risk
 - Fuel loads higher than historically
 - Larger, more extensive fires
 - More residents in the WUI



Prescribed Burns and Smoke Emissions

- Prescribed burns
 - Efficient fuel reduction method
 - Limited smoke control
 - Consistent public support
- Growing public concern for smoke
 - Number of negative air quality impact
- Key to public approval

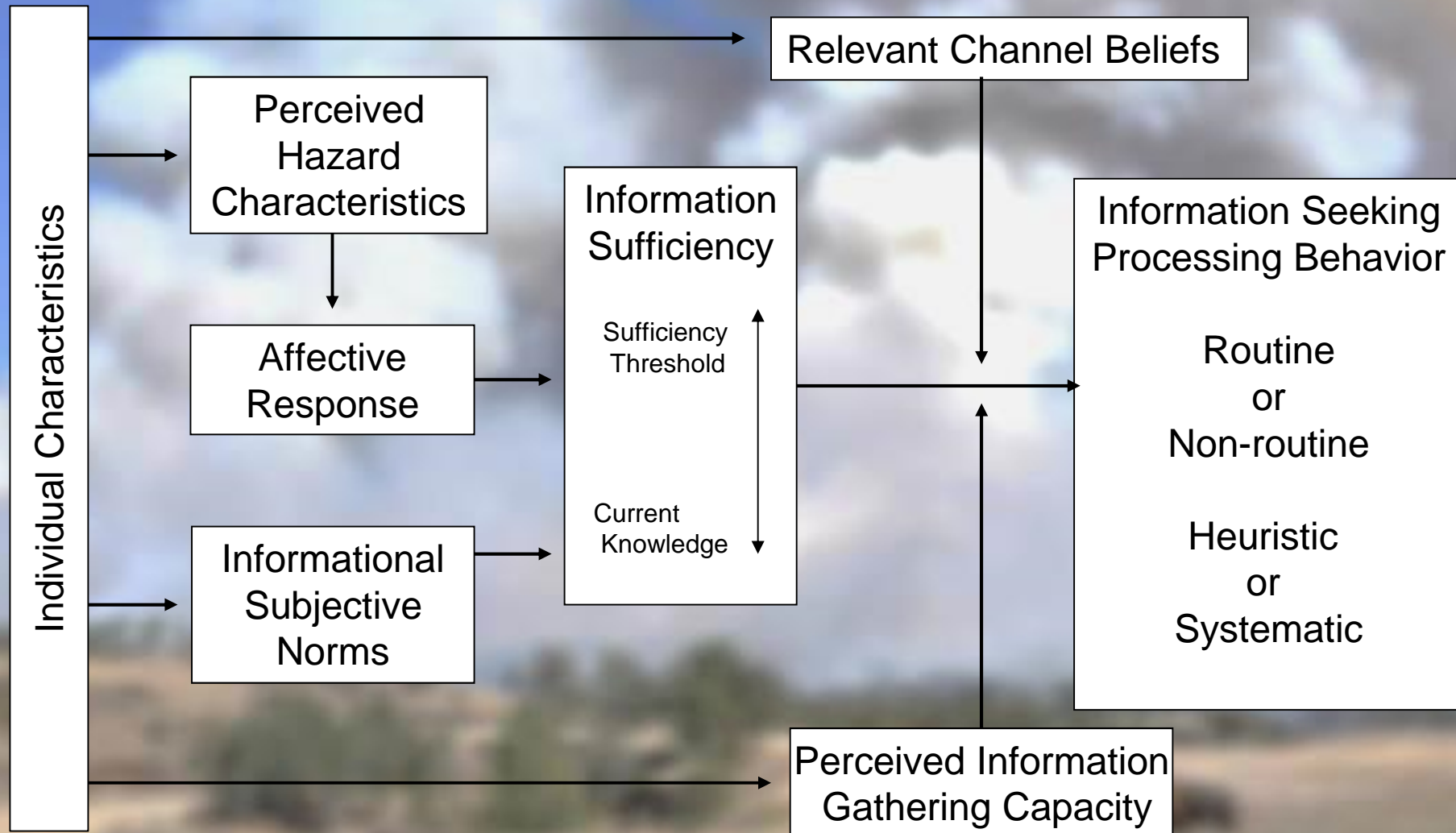


Risk Information Seeking and Processing (RISP)

- Information Seeking
 - Routine or non-routine sources
- Information Processing
 - Heuristic or systematic
- More effortful seeking and processing
 - Non-routine and systematic

RISP Model

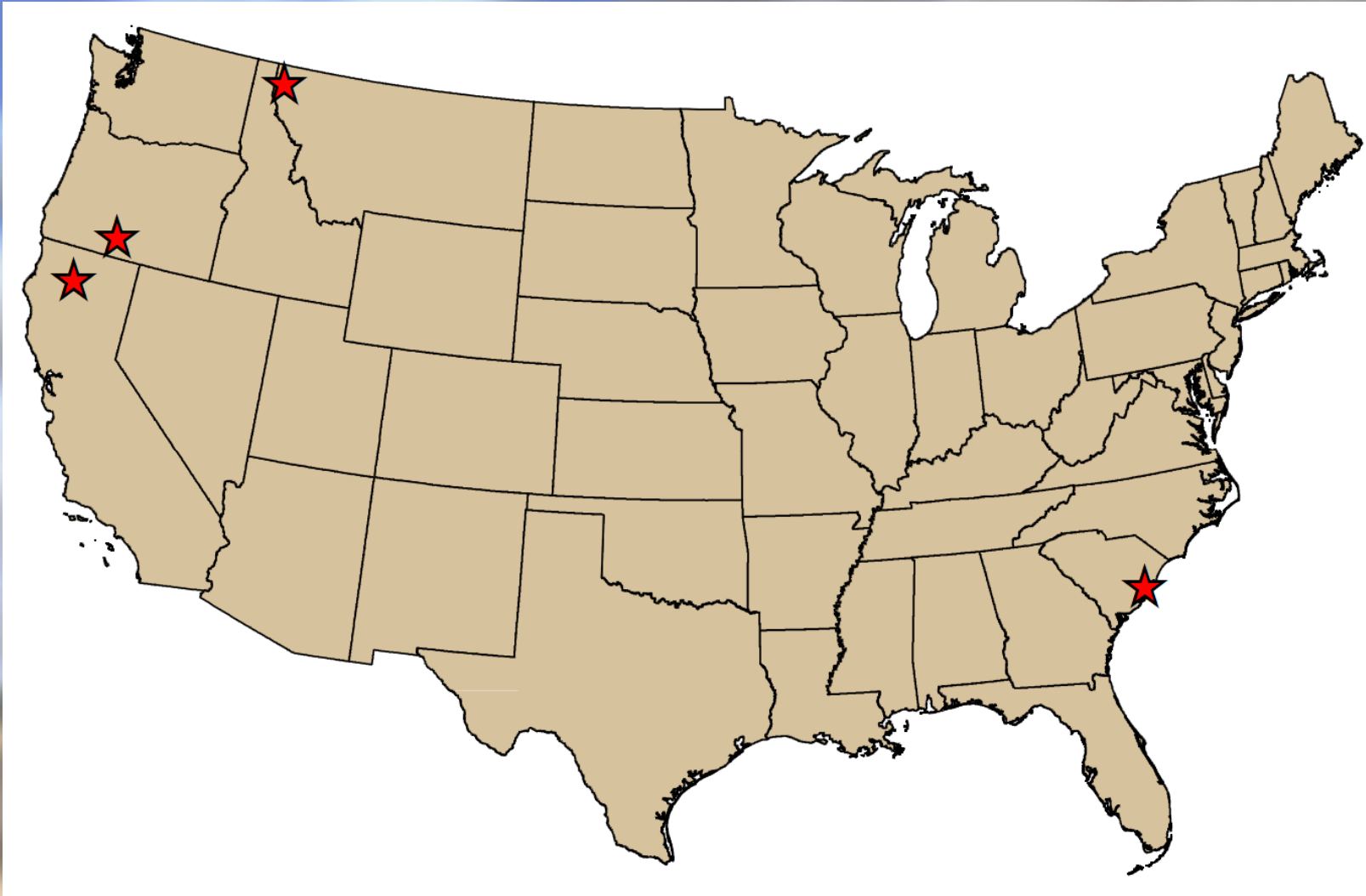
(adapted from Griffin et al. 1999)



Methods

- Phase 2 of 3-phase project
- Phase 1: Interviews
 - Informed survey
- Phase 2: Modified Dillman approach survey
 - Phase 2b: Follow-up survey to Northern California site
- RISP: Path Analysis

Site Locations



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California

Shasta Trinity National Forest

Redding



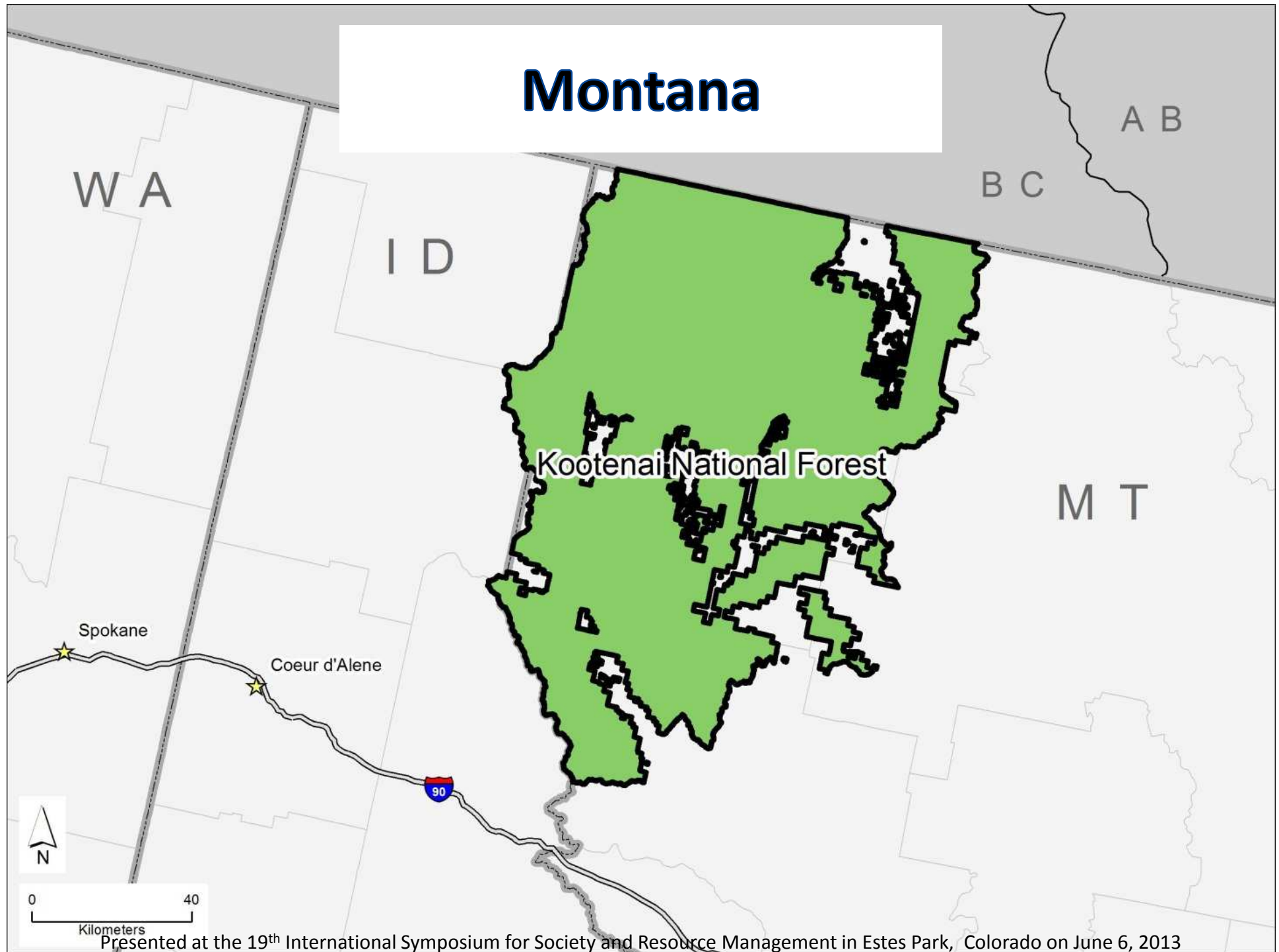
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Kilometers

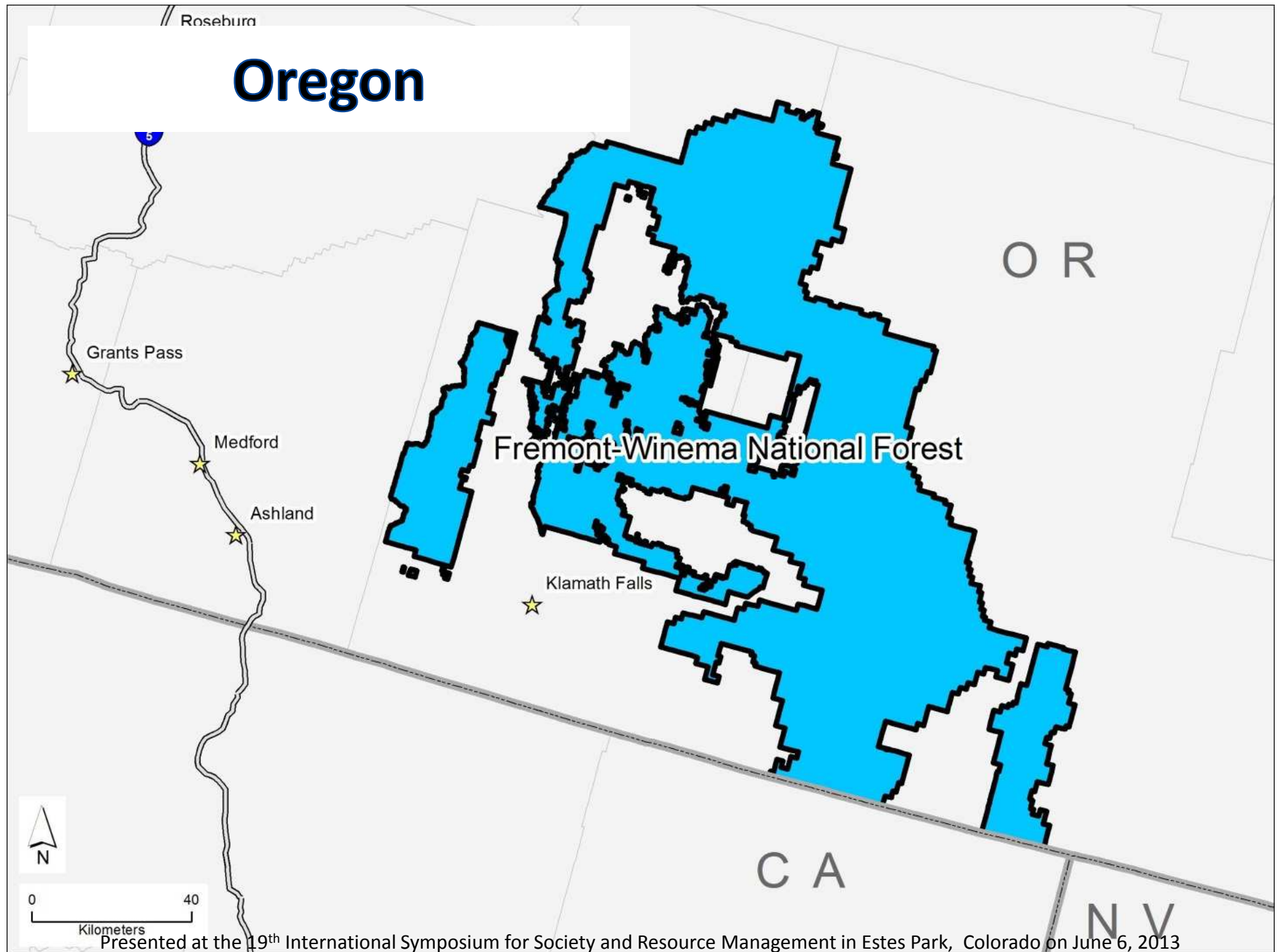
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Montana



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Oregon



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South Carolina

Francis-Marion National Forest

North Charleston

Charleston

Mount Pleasant



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Kilometers

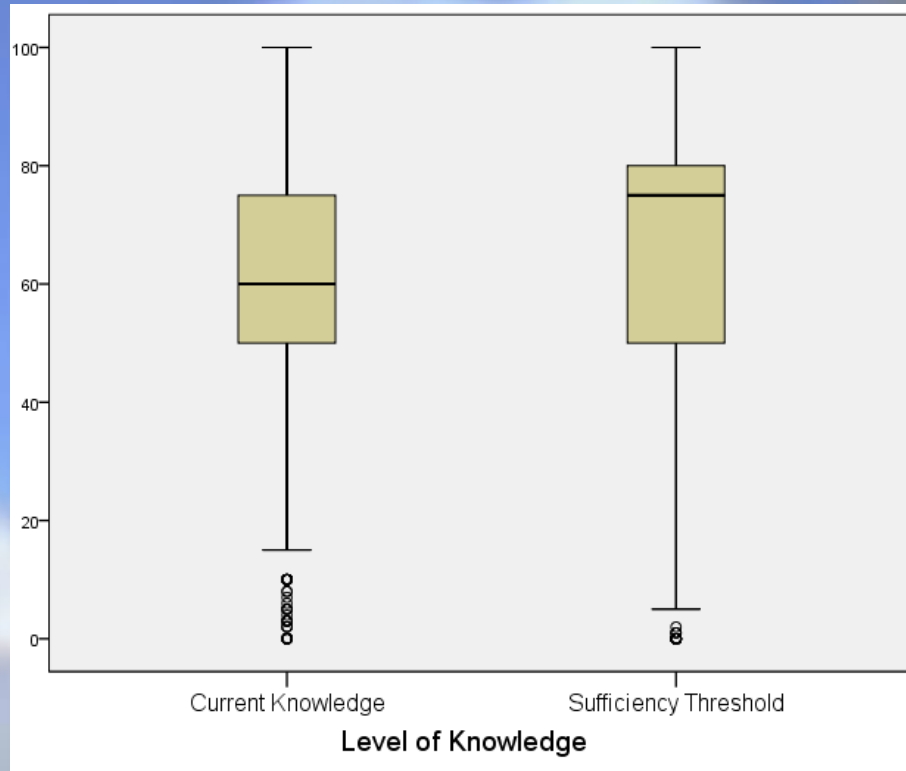
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Site	Mailed Questionnaires	Delivered Questionnaires	Completed Questionnaires (n)	Response Rate (%)
California	1200	1072	257	24
Montana	1200	1094	324	30
Oregon	1200	1070	273	26
South Carolina	1200	1089	148	14
Total	4800	4325	1002	23

Respondents

- N = 1002
- 58% Male
- Average 61 years old
- 88% white/Caucasian
- 73% attended at least some college
- Average income: \$40,000-60,000
- Non-response bias check: no meaningful statistically significant differences

Information Sufficiency (0 – 100)



Paired Samples T-Test for Perceived Current Knowledge and Sufficiency Threshold

	Mean (n=925)	Std. Error Mean
Current Knowledge (How much do you feel you know about smoke?)	58.68	.769
Sufficiency Threshold (How much do you feel you would need to know to have a comfortable understanding of smoke in your area?)	66.27	.818

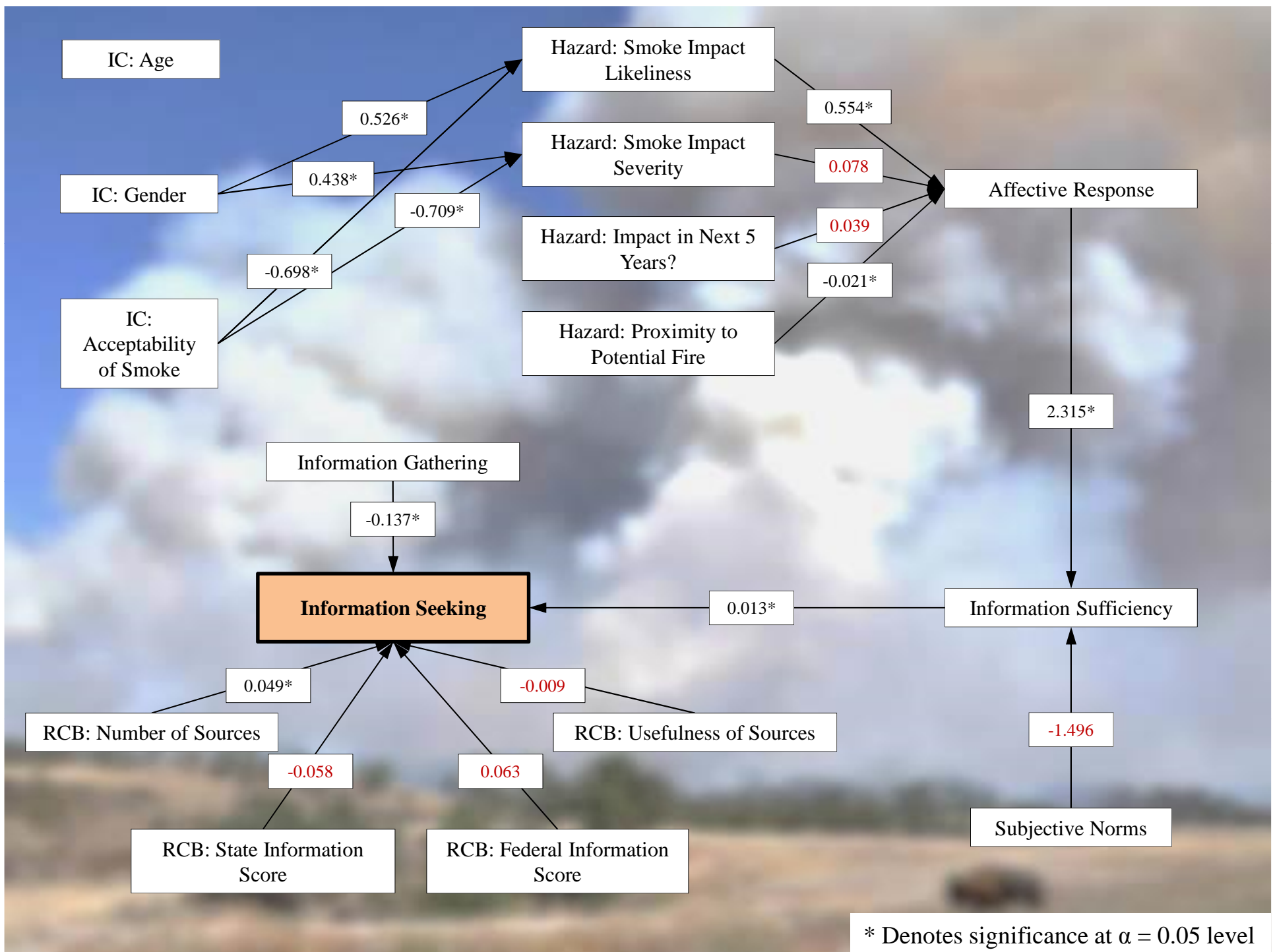
- Significant difference between current knowledge and sufficiency threshold, $t(924) = -7.88, p < 0.001$
- Need more information!

Relevant Channel Beliefs

- Number of sources (0 – 16)
 - $M = 4.76$, $SE = 0.115$ (overall average)
- Average usefulness of sources (1 – 5)
 - $M = 3.05$, $SE = 0.035$ (overall average)
- Information provision scores (1 – 7)
 - Federal agencies: $M = 3.72$, $SE = 0.049$ (overall average)
 - State agencies: $M = 3.94$, $SE = 0.049$ (overall average)

Perceived Information Gathering Capacity

- If I wanted to, I could easily locate information about smoke emissions
 - $M = 4.24$, $SE = 0.057$ (1 – 7; overall average)
- It is hard for me to find useful information about smoke emissions (reverse coded)
 - $M = 4.44$, $SE = 0.053$ (1 – 7; overall average)



IC: Age

IC: Gender

IC:
Acceptability
of Smoke

0.526*

0.438*

-0.709*

-0.698*

Hazard: Smoke
Impact
Likeliness

Hazard: Smoke
Impact Severity

Hazard: Impact
in Next 5 Years?

Hazard:
Proximity to
Potential Fire

* Denotes significance at $\alpha = 0.05$ level

Hazard: Smoke
Impact
Likeliness

Hazard: Smoke
Impact Severity

Hazard: Impact
in Next 5 Years?

Hazard:
Proximity to
Potential Fire

0.554*

0.078

0.039

-0.021*

Affective
Response

* Denotes significance at $\alpha = 0.05$ level


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graph TD; A[Affective Response] -- "2.315*" --> B[Information Sufficiency]; C[Subjective Norms] -- "-1.496" --> B;
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Affective
Response

2.315*

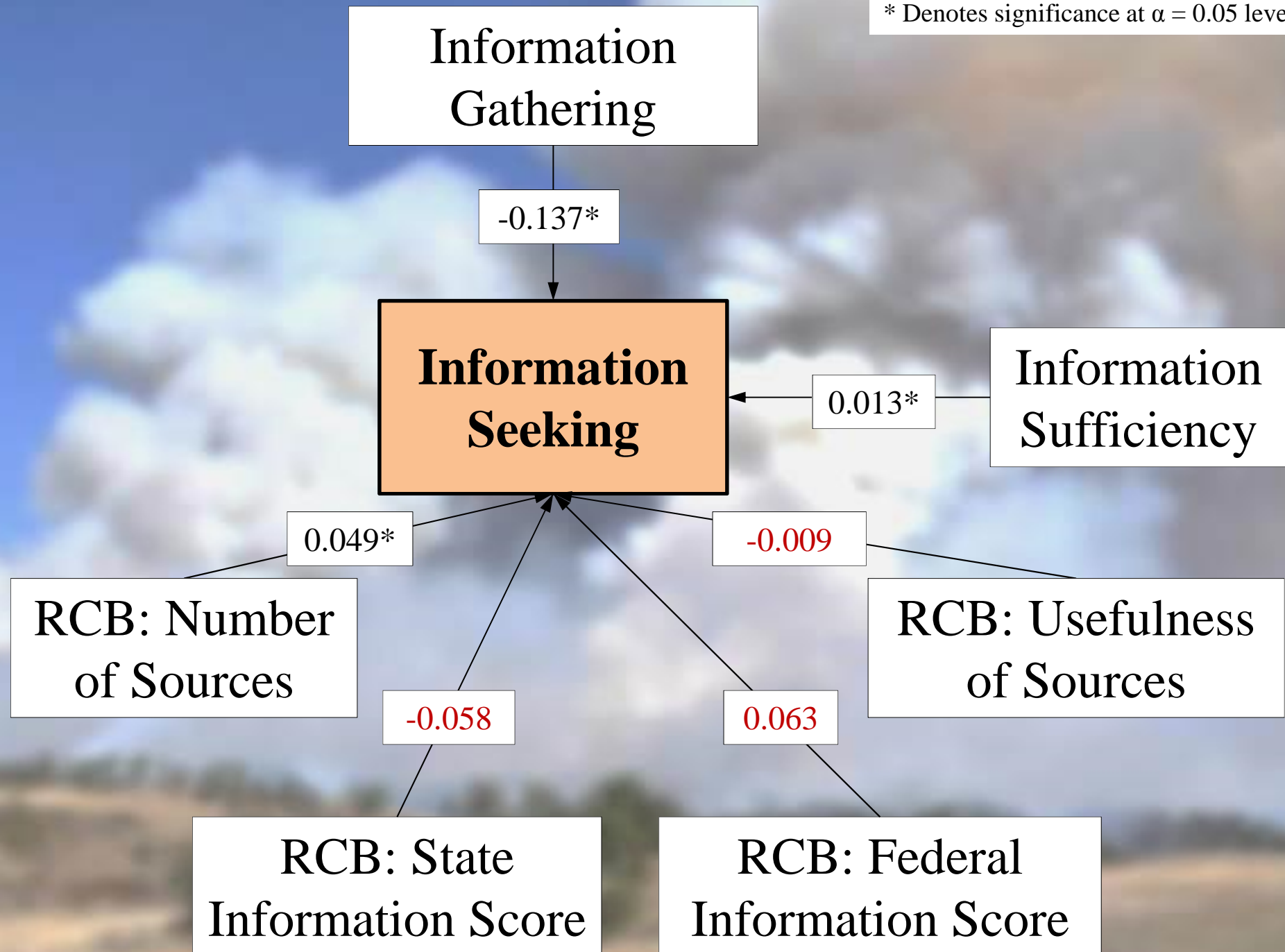
Information
Sufficiency

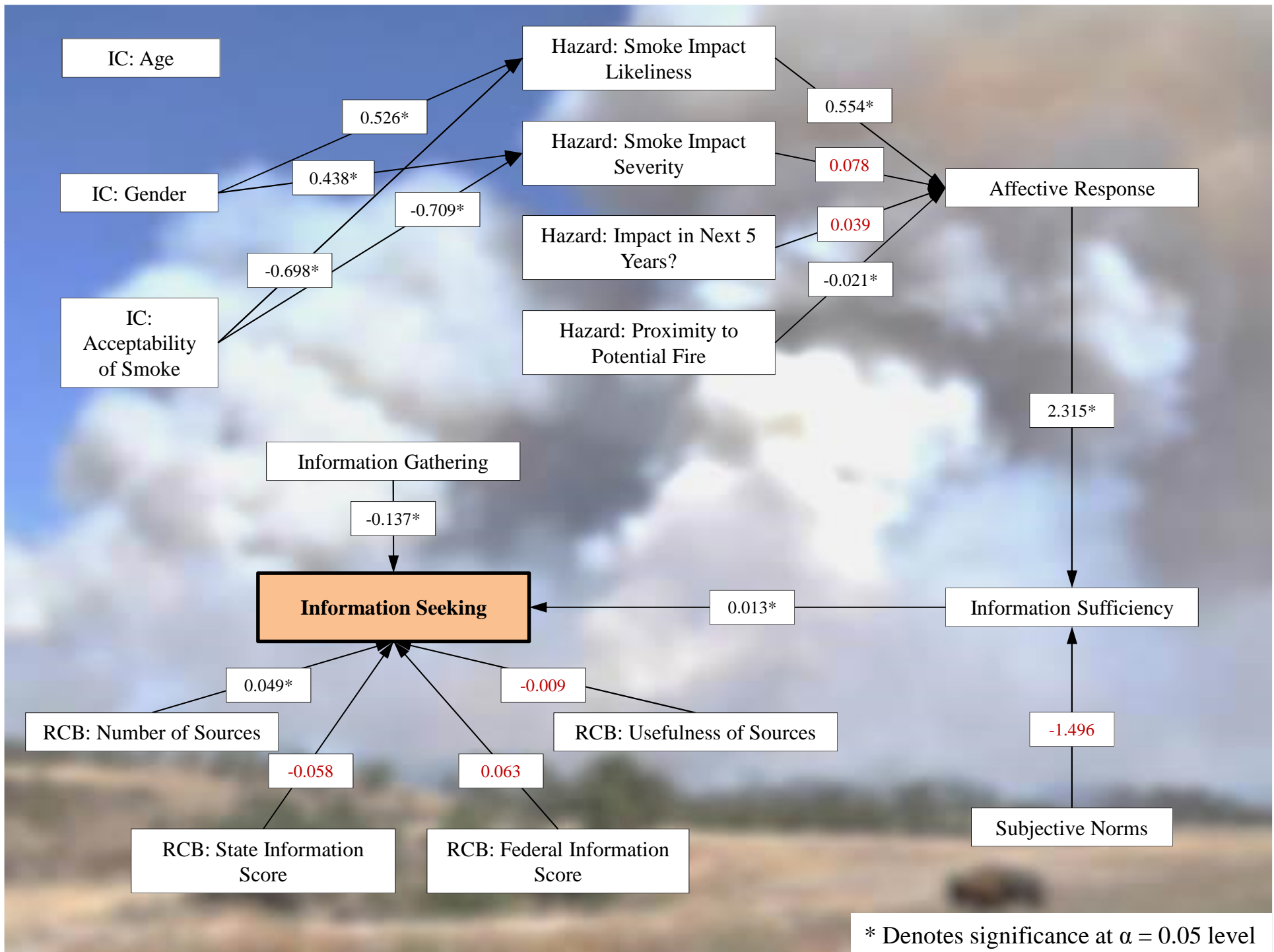
-1.496

Subjective
Norms

* Denotes significance at $\alpha = 0.05$ level

* Denotes significance at $\alpha = 0.05$ level





Conclusion

- Residents generally feel they need more information about smoke
- Information seeking influenced by:
 - Number of information sources (relevant channel belief)
 - Information sufficiency
 - Perceived ease of gathering information
 - Affective response
 - Some perceived hazard characteristics
- RISP model supports the literature

Future Direction

- Smoke communication strategies
 - What encourages information seeking and effortful processing?
 - Examine influence on knowledge, beliefs, and attitudes towards smoke emissions and management
- Influence on acceptability of prescribed burns



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- Survey respondents and interview participants
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Thank You!

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